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AUG 17 2005

Navy Case No. 84,352

In the United States Patent and Trademark Office

In re: Villalobos et al
Serial No.: 10/601,884
Filed: June 24, 2003
For: Spinel and Process for Making Same

Examiner: Ling X. Xu
Art Unit: 1775

Date: August 17, 2005

Second Appeal Brief

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20230:

Sir:

This is in response to the PTO office action dated July 7, 2005, entitled "Notification of Non-Compliant Appeal Brief (37 CFR 41.37)" and an appeal from the final rejection of claims 1, 4, 5, 19 and 20.

(i) Real party in interest

The real party in interest in this patent application is the Federal Government, as represented by the Department of Navy.

(ii) Related appeals and interferences

This application is not involved in any other appeal or interference.

(iii) Status of claims

Claims 1, 4, 5, 19 and 20 stand finally rejected. Claims 2, redundant claim 2, 3 and 21 have been canceled. Claims 6-18 have

been withdrawn and claims 19-21 have been newly added, of which, claims 21 has been canceled, as already noted.

(IV) Status of amendments

The Amendment After Final Rejection, dated April 20, 2005, has been indicated as being no-compliant due to the omission of the withdrawn claims from the claim listing. The Corrected Amendment After Final Rejection, dated May 20, 2005, has been indicated as entered but it did not place the application in condition for allowance.

(V) Summary of claimed subject matter

The appealed claims pertain to a sintered and transparent spinel product (l. 21, p. 5 of the specification). In lines 12-15 on p. 12 of the specification, it is disclosed that cost of the product is 1/3 to ½ of the prior art product since the costly HIP procedure can be omitted. The product claims herein are devoid of the sintering aid (p. 12, l. 6), has porosity of less than 0.2% (p. 12, l. 18), is transparent over the wavelength range of about 0.3-5.5 microns (p. 6, l. 16), has transparency in excess of 50% (p. 7, l. 2) and its grains are within about 300% of the average sized grain and is devoid of grains larger than about 1 mm (original claims 1 and 2). See original claim 4 for antecedent basis for transmission by 4 micron light and that spinel comprises oxides of magnesium and aluminum.

(VI) Grounds of rejection to be reviewed on appeal

Claims 1,2,5,19 and 20 stand rejected under 35 USC 102 (b) as anticipated by, or in the alternative , under 35 USC 1-3(a) as obvious over the Sellers reference, i.e., Sellers et al USP 3,768,990.

(VII). Argument

Rejection of claims 1,4,5,19 and 20 on 35 USC 102(a) and 103(b) on the Sellers reference:

It is believed that claims 1, 4, 5, 19 and 20 are not anticipated nor obvious over the Sellers reference. At lines 24-30, in col. 3 of the Sellers reference, it is disclosed that loss of the sintering aid lithium fluoride is to be avoided by heating for not more that about 30 minutes. This is in direct contravention to the claims herein that claim a spinel product devoid of the sintering aid, which allows the product to have the unobvious and unexpected properties disclosed herein.

(IX) Claims Appendix

Claims on appeal are the following claims 1, 4, 5, 19 and 20:

1. A product that is essentially devoid of a sintering aid and its components, said product comprising spinel that has porosity of less than 0.2 %, said spinel is transparent to light having wavelengths in the range of 0.3-5.5 microns and said spinel having transparency in excess of 50 % for a thickness of

1 mm, its spinel grains are within about 300% of the size of an average grain and is devoid of grains larger than about 1 mm.

4. The product of claim 1 devoid of grains of exaggerated size having transparency of at least 60 % for a 1 mm thickness at a wavelength of 4 microns and said product is a hard crystalline solid selected from the group consisting of oxides of magnesium and aluminum.

5. The product of claim 1 having transparency of at least 60 % for a 1 mm thickness at a wavelength of 4.0 μm and the spinel is a hard crystalline solid $MgAl_2O_4$.

19. A magnesium aluminate spinel sintered product that is essentially devoid of a sintering aid and its components, that has porosity of less than 0.2%, has uniform grain size wherein the grains are less than 300% of the average grain size and is devoid of grains larger than about 1mm.

20. The product of claim 19 having transparency in excess of 50 % for a thickness of 1 mm to light of 0.3-5.5 μm wavelength.

(X) Evidence appendix

None.

(XI) Related proceedings appendix

None.

Sincerely,

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Fax Certification

I hereby certify that this document is being faxed to the PTO on the date shown below:

8-17-05
Date

George A. Kap
George A. Kap

Please charge our account #50-0281 for any fee due hereunder. Also, it is hereby petitioned to extend response time by one month to Sept. 12, 2005. Please charge our account #50-0281 with the appropriate fee.